
Equipment configuration

Carrier system

A block diagram of the basic RPE system is shown in [Figure 1](#). A 1.544 Mbps multiplexed digital carrier system (such as LD-1), or a microwave radio link, is required for each RPE system. A maximum of two network loops may be connected through two RPE carrier shelves (one shelf at the local equipment location, and one at the remote location). A complete RPE shelf (two network loops) requires four digital carrier lines.

Carrier shelf

The same type of carrier shelf for the RPE is used at the local and remote locations. The QSD6 (left-hand mounted) and QSD11 (right-hand mounted) shelves may be mounted in any SL-1 peripheral equipment (PE) cabinet. The power supply connector is a two-pin type. Each shelf has a power converter card to derive its required voltages from a -48 V supply provided by a QBL14 Power Distribution Box. All cables from the carrier shelves are connectorized.

Each loop services a maximum of four PE shelves. RPE network loops are fully assigned to RPE use, and no other PE shelves can be served by these loops.

Each loop requires four cable pairs (two carrier lines) between the carrier shelf and the carrier system for transmission and signaling. A maximum of two cable pairs is required for maintenance purposes. These are the order-wire (OW) and fault-locating (FL) pairs, and are optional depending on the distance between the carrier shelves and on the location of the office repeater bay (ORB) in the system.

Each RPE system requires at least one ORB (see [Figure 2](#)) and line repeaters, unless the remote equipment is within about 762 m (2500 ft) of the SL-1 equipment. Locating the ORB at both local and remote ends of the carrier line is strongly recommended. This effectively allows the isolation of the carrier span from the SL-1.

An ORB provides the following:

- span line powering
- error monitoring
- fault-locating (FL) system access
- order-wire (OW) termination with digital distance dialing (DDD) access
- line looping

A typical RPE configuration is shown in [Figure 3](#). Each RPE system requires a carrier shelf at the local and remote locations. These are cabled to the SL-1 cross connect terminal through two NE-A25B cables.

Carrier shelves at the local equipment location and at the remote location are connected to QPC50 network cards and peripheral equipment shelves, respectively, through NE-A18QA connector cables.

Peripheral equipment shelves at the remote location are connected to the cross connect terminal through four NE-A25B connector cables in the same manner as are regular SL-1 PE shelves. For cabling and termination instructions, see the installation procedures for the system.

Two network loops connect to the carrier shelf. Each can serve a maximum of four PE shelves. Circuit card positions 1 through 4 and 5 through 8 serve network loops X and Y, respectively.

Circuit cards

The same circuit cards are used in the local and remote carrier shelves (see [Figure 3](#)), except for the QPC63 (local) and the QPC65 (remote) cards. All circuit cards have designated slot positions on the carrier shelves, and they must be kept in these positions to function properly. The QPC62 and QPC99 cards have option switches on their circuit boards. Circuit card handling procedures and option switch settings are given in *Circuit card installation and testing* (553-3001-211).

Emergency transfer

Designated 500-type telephones can be cross connected through emergency transfer units to outgoing trunks at the remote location. The telephones are connected to these trunks when the normally operated relays of the emergency transfer units release as a result of any of the following:

- loss of -48 V carrier shelf power
- loss of -48 V or ± 10 V (under control of the QPC84 Power Monitor circuit card)
- carrier failure

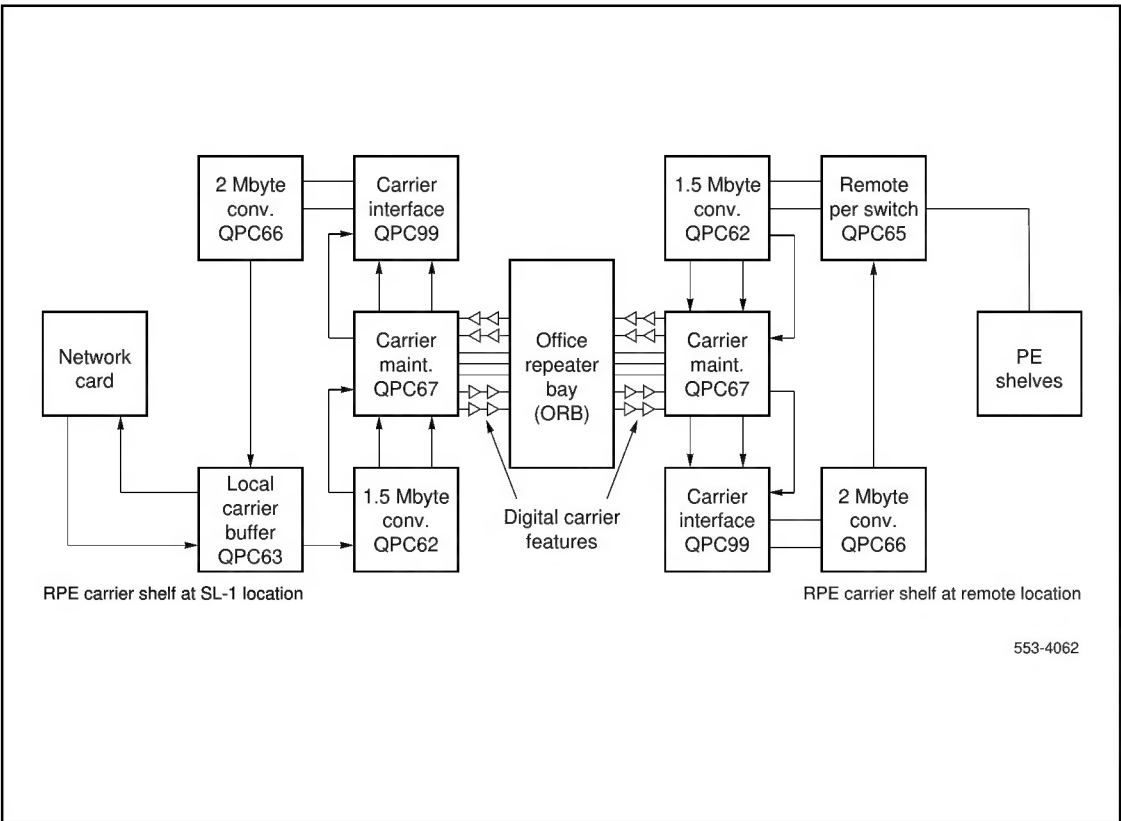
Note: Network loops are controlled independently.

- manual operation of emergency transfer switch on consoles

Note: This will not affect a remote location.

- manual operation of emergency transfer switch on the QPC84 circuit card

Figure 1
RPE block diagram



553-4062

Figure 2
Possible ORB locations in the RPE system

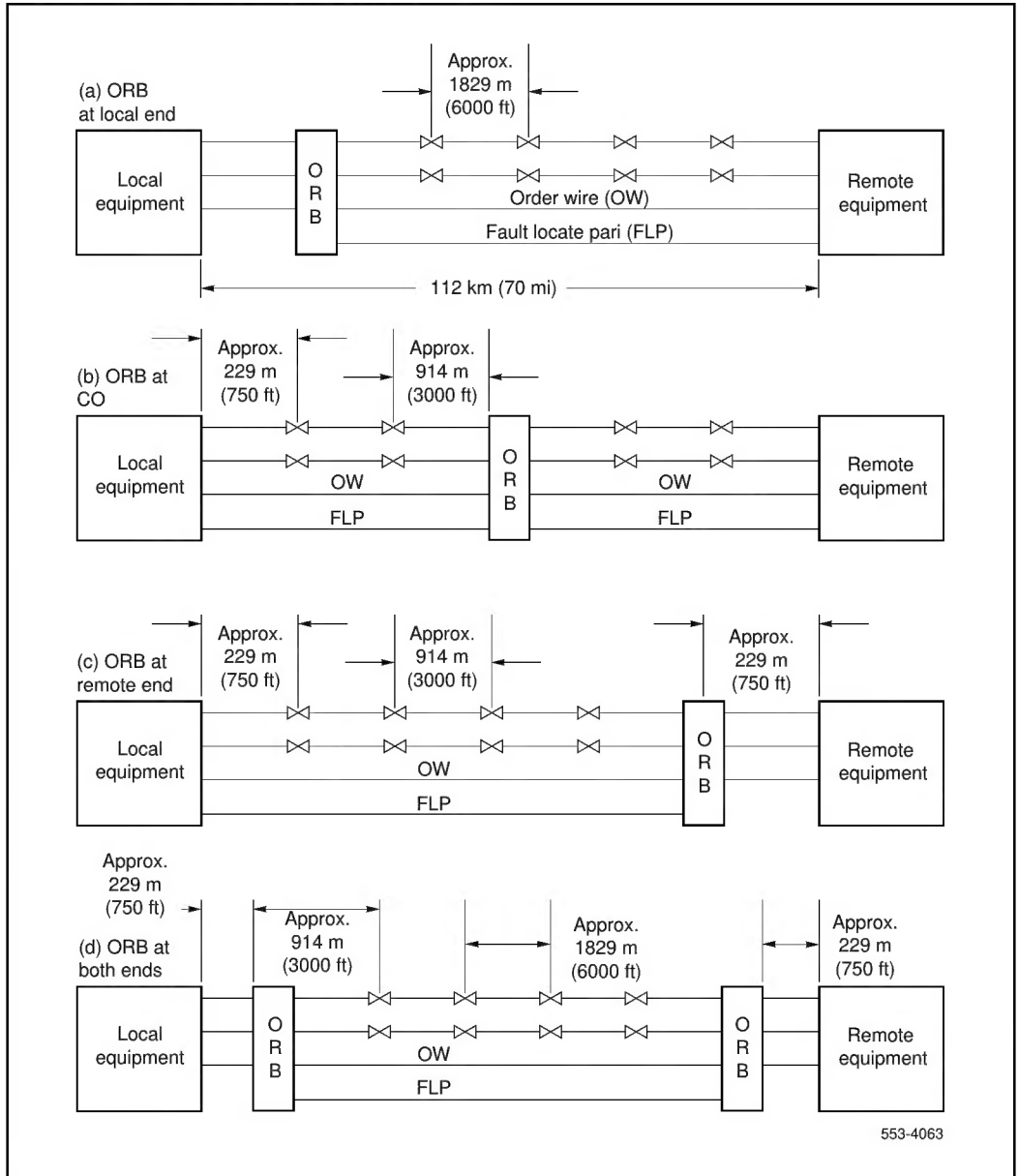


Figure 3
Typical RPE equipment configuration

